DOCUMENT RESUME

ED 161 353 HE 010 581

AUTHOR Palmer, Diane H.
TITLE Elements of an Economic Impact Study (Or Building on the ACE Model). AIR Forum Paper 1978.
PUB DATE May 78
NOTE 19p.; Paper presented at the annual Association for Institutional Research Forum (18th, Houston, Texas, May 21-25, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Community Benefits; Community Consultants; Community Services; Construction Costs; *Economic Factors; *Economic Research; *Educational Economics; Expenditures; *Higher Education; Interest; Investment; *Models; Property Taxes; Universities
IDENTIFIERS American Council on Education; *University of Pittsburgh PA

ABSTRACT

Requirements of a study of a school's economic impact on the community are reviewed and adjustments to the American Council on Education, or Caffrey-Issacs, model of economic impact studies suggested, based on the experiences of the University of Pittsburgh. Revisions to sections of the model dealing with tax loss to local governments, impacts on financial institutions, and employee spending are recommended. It is considered necessary to quantify and add to the model measures of human capital, support of the local tax base, community services, consulting services, construction spending, employee mortgage interest, local investments and part-time student spending. The importance of commitment, definitions of impact elements or impact area, and qualified staffing to the success of the model are also discussed. (Author/JMD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED161353

THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper is part of the ERIC Collection of 1978 Association for Institutional Research Forum Papers. All papers in the Collection were recommended for inclusion by the AIR Forum Publications Review Committee.

Robert H. Fenske
Arizona State University
(Editor, AIR Forum Publications)

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

A.I.R

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

HE 010 581

ELEMENTS OF AN ECONOMIC IMPACT STUDY
(OR BUILDING ON THE ACE MODEL)

BY
DIANE H. PALMER

PRESENTED AT THE EIGHTEENTH ANNUAL FORUM
OF THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

BALANCING NEEDS AND RESOURCES
MAY 21 - 25, 1978
HYATT REGENCY HOTEL
HOUSTON, TEXAS

University of Pittsburgh
May 1978

ABSTRACT

The American Council on Education (ACE), or Caffrey-Isaacs, model provides guidelines for schools engaged in economic impact studies. However, from the experience at the University of Pittsburgh it is felt that adjustments to the model in several areas are necessary and that additional factors can be included.

Adjustment is suggested to sections of the model dealing with tax loss to local governments, impacts on financial institutions and employee spending. Further, it is considered necessary to quantify and add to the model measures of human capital, support of the local tax base, community services, consulting services, construction spending, employee mortgage interest, local investments and part-time student spending.

The importance of commitment, definitions and staffing to the success of the model is also discussed.

Elements of An Economic Impact Study
(or Building on the ACE Model)

While inflation, technological change and market forces have increased the need for funding at educational institutions, changing social priorities have slowed the inflow of funds to higher education. Both the private and government sectors are confronted with escalating demands for support of worthwhile social, educational and environmental programs.

It is becoming increasingly common for public officials to argue that the student is the beneficiary of higher education and the demand made that he, therefore, should incur the cost.

Given this situation, it is becoming more critical that universities quantify their value to the community and advertise their economic role.

Most schools considering an economic impact study are familiar with the American Council on Education (ACE), or Caffrey-Isaacs, model[1]. This work is a useful starting point. The outstanding feature of the ACE model is its organization. It considers and relates numerous components of an institution's economic impact. However, several elements can be approached differently than suggested by Caffrey-Isaacs, and a few can be added to the analysis.

Rather than covering old ground by discussing the ACE model, this paper will review the requirements of an impact study and suggest, from the Pitt experience, additional factors on which an institution can place emphasis and alternative interpretations for other elements. Adjustments to the ACE model in estimating the tax loss to local governments, financial impacts, and employee spending are considered necessary. It is felt that

---

[1] John Caffrey and Herbert H. Isaacs, Estimating the Impact of a College or University on the Local Economy (Washington: American Council on Education, 1971).

quantification of human capital, support of the local tax base, community services, consulting services, construction spending, employee mortgage interest, local investments and part-time student spending should be added to the model. A brief discussion of each of these follows.

ADJUSTMENTS TO THE MODEL

ESTIMATING TAX LOSS TO LOCAL GOVERNMENTS

The ACE model uses an acreage basis for estimating the hypothetical taxes an educational institution would pay were it not tax-exempt. This method is not suitable for urban areas. In addition to equating building value to lot size, this method assumes land and building values in the campus area equivalent to the city average, both of which are inaccurate.

Further, the larger and more diverse the impact area becomes, the less correspondence there is likely to be between property values in different areas. Use of this method will result in a substantial underestimation of hypothetical taxes.

An alternative method, considering the campus property as developed for residential use, also underestimates the potential tax liability as it ignores the buildings that exist on the campus.

A more reasonable estimate of hypothetical tax loss considers land and building values separately. As an estimate of building value, accounting calculation of the book value of properties provides a reasonable estimate, particularly if a portion of the campus is relatively new. This would consider original cost and renovations less depreciation.

To estimate the market value of campus land, determine the selling price of commercial or industrial properties in the campus area. This will provide a high estimate which can be combined with the official assessed

value of campus land, which is probably low. Justification can be made for averaging these two extremes. If campus property were sold, the first properties would probably sell near the current exchange price; later properties would no doubt go at progressively lower rates.

To illustrate the differences in hypothetical tax loss to local governments by different methods of calculation: on an acreage basis Pitt's hypothetical liability is estimated at slightly over $550 thousand; on a residential development basis at $625 thousand; and when building and land estimates are made separately, as described above, hypothetical annual taxes are $7.1 million,[2] or almost fourteen times higher than as computed by the Caffrey-Isaacs methods.

FINANCIAL IMPACTS

The ACE model measures the college's impact on financial institutions by estimating the amount of local savings and checking deposits by the school and its employees and students. Considering reserve requirements, the model determines the amount available for lending in the first round of financial transactions. By these calculations, Pitt-related deposits allow for $8 million[3] in loans by local financial institutions.

Estimates of financial impact can, however, be increased by considering second and later round transactions, again based on fractional reserve requirements. There are two approaches to this analysis, the first dealing with new money injected into the region, the second with support of the reserve base by all deposits.

---

[2]Diane H. Palmer, "The University of Pittsburgh and the Regional Economy, 1975-76" (University of Pittsburgh, Office of Institutional Research, 1978), p. 5.

[3]Ibid., p. 20.

The portion of the school's funds coming from outside the region can be related to institutional and employee deposits; similarly the percentage of non-local students can be related to student deposits in local banks and savings and loan institutions. These computations produce an estimate of deposits brought into the region by the university. The total expansion in the region's reserve base must consider outflows from the region, which will vary with the nature of financial markets in each area. However, by calculating outflows, an estimate of the portion of the regional reserve base created by the university can be made. In these calculations it is also essential to consider the differential reserve requirements on time and demand deposits.

At Pitt it is estimated that the reserve base in the area is increased by $44 million as a result of money attracted to the region by the University, or more than five times the impact measured in the ACE model.

As an alternative analysis, the total amount of the region's reserve base supported by college-related deposits can be estimated, considering all deposits, outflows and reserve requirements. In the Pittsburgh area, over $100 million of the local reserve base is supported by University-related deposits, or more than twelve times the first-round financial impact.

EMPLOYEE SPENDING

In the ACE model spending proportions are supported by several questionable assumptions. First, take-home pay is assumed equal to family expenditures. No allowance is made for saving. Yet in the financial sections of the model employees are assumed to hold savings accounts. To overcome this inconsistency it is possible to use the national savings rate and calculate the incremental savings (savings in addition to that in deducted savings plans).

This assumption also ignores the question of multiple wage earners. With almost half of the labor force female, ignoring this question can distort the employee impact significantly. In multiple-income families all spending items should be proportionally divided to represent only the portion of income the university provides.

All insurance and personal taxes are assumed deducted from employees' earnings. Most life insurance as well as property and automobile insurance are discretionary purchases and therefore not deducted by the institution. Allowance should be made for additional purchases. Standards as presented in the Department of Labor's urban budgets can be used.

Part-time Employees

The income of part-time employees is as significant to the area as that of full-time employees. Their spending patterns are likely to vary from the full-timers, as are the types of purchases made. It is necessary to recognize in the model the differences in spending as accounted for by part-time employees. This would imply creation of a set of variables corresponding to part-time employee spending.

As with other multiple-income families, the purchases of part-time employees must be adjusted to reflect the proportion of income that is university-related.

ADDITIONS TO THE MODEL

HUMAN CAPITAL

Many of the benefits of higher education are intangible and therefore unquantifiable. However, one of these, the improvement of skills of community members, can be closely measured through the return to labor. If it is assumed that job level and salary are related to education, then

earnings differentials are a surrogate for the economic return on education. While there are several methods to calculate the earnings advantages, the most straightforward is to use published Labor Department statistics of salary differentials by educational level combined with published participation rates.

Once an institution has quantified the lifetime earnings differentials which accrue to its graduates, the distribution of residences of these individuals becomes important. It is true that the most obvious beneficiary of increased earnings is the individual, but the community likewise benefits. Urban institutions are likely to find that a large portion of their alumni reside in the impact area being studied. The increased earnings of the institution's graduates generates incremental employment and income in the region through higher consumption and produce tax revenues which local governments would not otherwise have available.

For example, at Pitt the earnings advantage of graduates translates into $4.9 billion incremental lifetime taxable income to the City of Pittsburgh and $6.7 billion for Allegheny County,[4] our impact area.

SUPPORT OF LOCAL TAX BASE

One impact not quantified in the ACE model is the stimulation given by the University to property values in the adjacent community, and hence to real estate taxes. This can be considered as an offset to the tax loss the campus represents to local government.

It is possible to observe the pattern of change in property assessments over time in selected areas and estimate the influence which the school has provided. The assessment history of a community within the impact area

---

[4] Ibid., p. 23.

comparable to the community adjacent to the campus will provide a standard for comparison. In the University experience, the area in which Pitt is located showed a 52 percent increase in assessments while a neighboring community recorded a 4 percent decline over a twenty-five year period considered.[5]

Even when compared to a city average of assessed values, the community surrounding an urban campus should show a pattern of increasing assessments because of the inevitable shift from residential to commercial use. Comparison to the city average is more conservative than comparison to individual communities. But even on this conservative basis, it is estimated that in Pittsburgh local governments receive $1.7 million[6] annually in added tax revenue because of the increase in the tax base in the campus area.

COMMUNITY SERVICES

Also as an offset to the taxes lost by local governments, the college's services to the community can be considered. Caffrey and Isaacs mention these items, but suggest they cannot be quantified. However, dollar costs can be determined for most community-benefit programs. For example, a university's medical and/or dental school may operate clinics available to residents of the area at little or no cost. The amount by which the school subsidizes these facilities can be interpreted as a tax offset. In the clinic's absence local governments may be required to provide comparable health services.

The cost of use of college facilities by community members can be estimated by considering relevant salary, utility and maintenance costs.

---

[5] Ibid., p. 8.

[6] Ibid., p. 7.

Similarly, costs can be estimated for training programs, conferences, seminars and lectures for teachers, social workers and other professionals.

In an urban area, security is a prime consideration. The presence of the campus security force in the community can serve as a deterent to crime by community members as well as school-affiliated persons. Campus police officers who patrol the community and respond to the needs of citizens in general, not just university-related residents, supplement the local police department and replace officers who would otherwise have to be hired at city expense. If the number of such officers is estimated, salary and fringe benefit rates paid by the city can be employed to estimate the savings to government.

At the University of Pittsburgh the value of community-donated services is significant -- more than $4 million annually[7] -- or more than one-half the hypothetical tax loss to local governments.

AVAILABILITY OF CONSULTANTS

In its faculty the university or college maintains a pool of experts on community, social, economic, political, environmental and health questions. Faculty are encouraged to provide service to local governments and community organizations. These activities are supported by university funds.

There are two methods for calculating the cost of these services. The cost to the school of released time can be estimated using salary and fringe benefit rates. Or, as an alternative, and more realistic estimate, the hypothetical cost to civic groups to obtain these consulting services can be determined, using average rates which faculty obtain as paid consultants.

---

[7] Ibid., p. 6.

At Pitt, University-supported faculty public service saves the community more than a quarter of a million dollars annually. This can be considered an additional offset to taxes lost by local governments.

CONSTRUCTION SPENDING

One significant area of impact not included in institutional budgets and not given adequate attention by Caffrey-Isaacs is construction spending.

Construction spending warrants special attention because it is primarily funded from non-local sources; because most of the impact is local; and because its effects can be tied directly to employment in a particular industry. Construction at the University of Pittsburgh is estimated to have supported an average of 337 local construction jobs a year for the last 67 years.[8]

One type of tax payment, related to construction, which may be overlooked is the cost of building permits. In Pittsburgh permits for renovation are proportional to the cost of construction. For example, for one recent renovation the permit cost the University over $4,000.

MORTGAGE INTEREST

In the ACE model all expenditures by renting employees are considered, but mortgage interest or imputed rent of homeowners is ignored. Mortgage interest represents income to local lending institutions just as purchases of food or clothing represent income to local merchants. It is advisable to calculate the amount paid to local financial institutions and include it as an element of local spending. Estimates of the amount of mortgage interest can be obtained from surveys of faculty and staff.

---

[8] Ibid., p. 13.

LOCAL INVESTMENTS

In addition to transactions balances, colleges and universities hold income earning accounts for current funds, plant funds and endowment funds. These investments can result in an additional inflow of funds to local financial institutions and corporations. Certificates of deposit with local banks, commercial paper and common stock of local corporations have averaged over $25 million dollars over the last three years at Pitt.

PART-TIME STUDENT SPENDING

Enrollment of part-time students is likely to be significant for most urban institutions. The ACE model treats part-time students as visitors to the campus and calculates their spending as part of that group.

The spending by part-time students may, however, be estimated as a separate impact in the model. Spending to be considered is that which is incremental to the impact area, induced as a result of college attendance. For this reason, part-time students who reside within the impact area should be excluded from calculation -- types of spending may be changed but the amount unaffected.

Spending within the impact region by part-time students who live outside the area should be estimated. A survey of these students can identify the amount and type of spending.

PERIPHERAL ELEMENTS

Data elements can be classified as essential or peripheral. Essential elements are those which cannot be excluded from the impact model, regardless of the difficulty to collect. This would include such things as local university purchases, faculty and staff taxes and student spending. Peripheral elements are those which make the model more comprehensive, but without which an adequate measure of local impact can be made.

The ACE model contains several peripheral elements. Elements which relate to local business property and taxes, principally, can be excluded without sacrificing the impact estimate.

The community cost to provide government services to the university can be excluded, given certain conditions. If a reasonable estimate of tax loss is made, this can be considered as a generous estimate of the cost to local government of the services it provides the college and its members. If it can be shown that the institution reimburses the local community either through tax payments, services or stimulation to the tax base, it has been demonstrated that the school is paying its way in the community. It becomes unnecessary to compute the net cost of government services.

On the other hand, if either of the above conditions is not present, it will be beneficial to calculate the net cost of local services.

ADDITIONAL REQUIREMENTS

In addition to modifications of the model, other essentials for a school are commitment, definitions and staffing. These are as important as data to the success of an impact study.

COMMITMENT

An economic impact study takes considerable effort, and not only from the researcher and research staff. For the institution to receive maximum benefit from an impact study, it is necessary that the results be highly publicized. This makes it essential that data sources be dependable and reliable. Many offices will be required to supply information, much of it requiring considerable effort, and most likely in addition to a normal

workload. To obtain the cooperation that is necessary, the study must be mandated by the school's executive officer and must be accepted by the total institution.

DEFINITIONS

There are no hard and fast rules for definitions of the impact elements or impact area. The definition set or model will vary by institution. What is constant is the necessity of defining the elements at the planning stage of the project, before data collection is begun. This insures that only one request for data will be made to each university source and can expedite and improve survey design as all relevant groups and variables can be considered from the beginning.

In most institutions there will be debate over definitions. To minimize debate, the research director must be certain that impact elements are defined logically, consistently and practically. By logically, it is meant that definitions must be institution-specific and be reasonable in light of the type of community in which the school is located, the nature and size of the student body and the characteristics of faculty and curriculum.

Elements of economic impact relate to each other and must be added to obtain the cumulative impact. For this reason, consistency of definitions is necessary. For example, all variables must be defined for comparable time periods; similar taxes and spending data must be considered for all groups; the tax basis of university property must be consistent with the tax basis of residences, etc.

On peripheral elements, practicality can also be a requirement for inclusion in the model or for definitions. It would be impractical to include in definitions peripheral items for which the cost to collect would be exorbitant; for which the time required to collect would unreasonably

delay the study; for which recent data were not available and updating was not possible (meaning some variables would be considerably outside the time dimension of the study); and for which it was politically unwise to request data, including groups of persons who might be uncooperative or hostile to the university.

STAFFING

It is advisable that the impact study coordinator have a knowledge of economics, statistical analysis and survey design. Familiarity with the institution and community is also essential.

An institution which is considering an impact study may, after initial investigation, feel overwhelmed by the complexity of the project, and consider engaging a consultant. This can be wise if the responsible university department lacks the technical expertise. However, a consultant's approach and interpretations are prejudiced by his personal experiences. Each institution is unique, maintains its financial records in its own way, and has developed unique relationships with its community and local government.

It is advisable for the institution to retain control over model development and data interpretation while relying on the consultant's advice and expertise. If one person in the institution lacks the skills to direct the study, a committee of persons with the necessary expertise can be formed. The most desirable situation, however, is for the institution to utilize the skills it has available internally.

CONCLUSION

An economic impact study provides the mechanism for a college or university to quantify its economic role in the community. Each school and its community are unique, requiring that the impact model be defined for the institution.

The Caffrey-Isaacs, or ACE, model provides a foundation for any institution to begin its study. However, inclusion of additional elements and adjustments to the calculation of others can provide a more comprehensive and accurate estimate of the impact.

REFERENCES

Caffrey, John and Isaacs, Herbert H. Estimating the Impact of a College or University on the Local Economy. Washington: American Council on Education, 1971.

Palmer, Diane H. "The University of Pittsburgh and the Regional Economy 1975-76." Office of Institutional Research, University of Pittsburgh, 1978.